

SOME NOTES ON THE TREATMENT OF GOUT.

A Thesis for the Degree of M. D.

by

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The whole subject of the treatment of gout, has, from the earliest times in the history of medicine, been one of perplexing interest to physicians, for owing to the many and hybrid forms in which the gouty state presents itself it seems looking broadly at the subject as if no definite law could be laid down for our guidance.

Before treatment can be scientifically applied to any condition, it is necessary that we should have as full and proper a conception of the complaint as possible. In the first place we recognise gout as essentially a constitutional or diathetic malady which exhibits itself in a variety of forms. Like all other constitutional affections, the parts most readily sought out for local manifestations are those portions of the body whose vitality, or powers of resistance to outside agencies, such as toxins, has been weakened in any way - as by an injury, and so these parts are rendered more susceptible to any toxins which may be in the system. Thus we see gout as it were enter into the constitution of a person by heredity - which is agreed on by all authorities on the subject as being one of the most important factors in its causation. This subject of heredity must always/

always possess much interest to the physician if he be brought into contact with many cases of gout. It is said that in fifty per cent of cases there is a definite history of the transmission of the malady having taken place from father to son, but in all probability the percentage is even higher. How often, for instance, in looking into the family history of a patient do we take account only of the more evident forms of the malady, and either omit or totally ignore the less evident aspects of the disease as presented in the irregular forms of gout. Herein also may lie the explanation of the question as to whether or not true atavism is ever in association with gout. Very probably there is no such thing, and if in such so-called cases the family history of the patient were gone into more fully we should probably find that the immediate parent was affected with some constitutional ailment affecting the digestive, nervous or other system as the case may be, whose primary origin was due to the gouty state.

While duly recognising the importance of the hereditary influence, there can be no doubt whatsoever that gout can be acquired by the individual. The acquired form usually occurs later in life than in the hereditary form where the symptoms may manifest themselves/

themselves at an early age. For the explanation why acquired gout appears later in life one has not far to seek. We take it that the person born without the gouty taint in his constitution, is during his youth and early adult life leading an active and vigorous life, whose means very likely do not allow of more than the mere necessities of life.

On reaching middle age however, having prospered in business, and having reached an age when he cares less to exert himself, he now in all likelihood no longer walks to business and so loses the excellent exercise provided by a sharp walk in the morning. Thus from lack of physical exercise he becomes stout in body, partly on account of the diminished bodily metabolism, and partly owing to the increased amount of food taken. His means, let it be supposed, now permit of his indulging in richer dishes which contain too large a proportion of nitrogenous constituents, very likely also he now has a glass or two of wine after his dinner. Thus in such a man who is daily committing errors and excesses in his dietary, and added to that a deficient amount of exercise so that the system ultimately becomes loaded with waste products, it is easy to understand that the establishment of the gouty state/

state is only a matter of time.

Most physicians have now come to regard gout and the gouty state as a malady primarily due to dietetic errors, occurring in those placed in luxurious surroundings: moreover that the rich and well-to-do are more prone to gout than the other classes of the community, there can be no questioning. It must however be borne in mind that gout does not confine itself to any particular class of the community. There can be no doubting but that gout can occur in the poor man as well as the rich. I have myself seen and treated many such cases - indeed my whole experience has been with "poor man's gout" as naturally the possessors of "rich man's gout" do not seek advice at an hospital. One word about "poor man's gout". The condition of chronic rheumatoid arthritis has by some been termed "poor man's gout", but when so named it is either a misnomer or an error in diagnosis. The occurrence of true gout among the lower classes may be considered quite a feature of the South of England. It is a well recognised fact, that gout in any of its forms is rare and practically unknown in Scotland and Ireland, and students attending the medical practice of the hospitals in Edinburgh, Glasgow, Dublin or Belfast may quite easily complete a whole curriculum without having had any/

any clinical experience of gout. Of course all over the country gout occurs in the select class of the well-to-do. The explanation given by most writers on the subject is that while in Scotland and Ireland the beverage of the working classes ^{is} mainly whiskey, in the South of England these classes prefer beer, ciders and cheap wines. It is also evident to any observers that as a people the English tend to over-feed themselves, especially is this the case as regards the quantity of meat consumed.

Thus what may be termed "high living" is a factor in the causation of even "poor man's gout". But does this alone explain why it is that in a comparatively small town like Bath one can safely say that scarcely a day passes without one seeing at the out-patient practice at this Hospital, several cases ^{of} articular gout, gouty eczema or other forms of gout.

Now while some of these cases are those of gentlemen's servants, butlers, coachmen, hotel employees and suchlike, who having lead luxurious lives have ultimately been seized with gout and come to Bath for treatment, in addition we have quite a number of cases of painters and workers in lead whose trade renders them specially liable to acquire the gouty constitution.

Granted/

Granted the above there is yet a large percentage who are natives of Bath, and whose habits of life have been in no ways so different from those of a similar class living say in the lowlands of Scotland. One is inclined to form the opinion that these people are the descendants of former generations who had come to Bath for the treatment, become domiciled there and by heredity have made it the endemic disease that it is.

It is to be admitted at the outset that at the present time there is no specific for gout, but while practically all the drugs in the Pharmacopœia have been tried and found more or less wanting, yet we have been able to select from the mass a few drugs which have been found - empirically be it said - to act beneficially on the gouty state.

Now why all this uncertainty? Simply because we are attempting to treat a malady of whose pathology we know but little. Furthermore we cannot depend on the action of any drug to cure gout, for being essentially a constitutional disease, the condition must be approached by attention to the prophylaxis and by directing our efforts to treating the individual and not the disease. By the judicious use of drugs, however/

however, we can do much for our patients by way of relieving the symptoms. In every case of gout, therefore, it is necessary to direct the attention not only to the manifest affection, but to the fountain-head of the malady - namely to the constitution of the patient.

The early treatment of the case, namely the treatment of one or other of the acute manifestations is straightforward. In the later stages the treatment is not so satisfactory. The treatment now prescribed involves much self-denial on the part of the patient, who, feeling very well after the acute stage has passed, now chafes at the restrictions placed on his diet and regimen. Thus the orders of the physician are not carried out to the letter the net result being to render the successful treatment of the case ineffectual. This is the great trouble we have to contend with as either from weakness of will-power or simple perverseness the patient goes on with his old gout-inducing habits, the result being a succession of gouty attacks until the patient may fairly be said to have become the subject of chronic gout. A case in point is the following:-

A.P./

A. P. Aet 52. Quarryman.

Pain began in feet and ankles twelve weeks previous to admission. Has had "gout" on and off for twenty years. Gout started in big toe. During twenty years has had attacks of gout about three times a year. No gout in parents. Two brothers suffer from gout. No tophi in ears. Teeth ground down. Tongue thickly coated. Breath foul. Both wrists red and swollen - the left more than right. Movement in both painful and limited. Right wrist can be extended as far as straight line. In left movement is less. Both little fingers are incapable of complete extension. Has sweating of feet. Urine on admission 1024, acid, urates, no albumin, no sugar.

Patient was put to bed, local soothing applications to wrist joints, also given Potassium Iodide, grains five, Colchicum wine minims ten, Sulphate of magnesia one drachm with water to the ounce three times a day.

Here then we have one of those frequently recurring cases of gout in a man, who being the subject of hereditary gout, goes on drinking beer and indulging in other excesses when ordered not to do so and informed of the results of his so doing. Such a man is quite hopeless. Any treatment which you may prescribe can only give at the best merely a temporary relief from the acute paroxysms. This is one of the disappointments of using colchicum in the treatment of gout, as while relieving the pain which to some patients is the only thing worth heeding, they possess the knowledge that their pain will speedily be relieved whenever it comes on, and they will make no sacrifice in their habits or appetites to aid in any way/

way the treatment of their malady.

The following also is the report of a typical case of Chronic Gout kept up by frequent bouts of drinking and loose living.

J. P. Aet. 62. Retired Sergeant. S. Complains of "Gout". Says he always has gout hanging about him. Fairly well till two months ago when he had a bad attack in right ankle, left ankle and both knees. His chief trouble at present is loss of power in legs. First attack of gout in 1869 in big toe joints. Has had it ever since off and on. Had gonorrhoea in 1863 also Syphilis. Drinks anything but chiefly beer. Father had gout. One sister had gout. On admission numerous tophi in both ears. Hands swollen, knotty, deformed and evidently full of urate of soda - not inflamed. Right knee joint and left ankle joint much swollen and reddened. Tongue furred - slight tremor. Teeth discoloured and ground down. Urine 1023. Acid. Urates. On admission was placed in bed. Given a pill containing Blue pill grain one, with Colocynth and Hyocyamus grains two and a half, also put on a four-hourly mixture containing Colchicum wine, minims fifteen. Salicylate of Soda grains fifteen, Bicarbonate of Potassium grains twenty with water to the ounce. Next day patient was much easier of the pain and feeling much better.

Here is a severe case of chronic gout into which all the most potent gout-inducing factors were brought into play. There is well marked heredity his father and other members of the family being the subjects of gout. During his whole life he has been a heavy drinker, taking his beverage in the worst possible form - namely beer. He has also led a systematically immoral life which in itself militates against the successful

successful treatment of the gouty state. No wonder is it then that such a patient is a perfectly martyr to gout and resists all medicinal and other treatment which is prescribed for him. Such a patient should even yet be well warned for the remainder of his life to lead a more regular life and to observe extreme moderation in his diet and habits. Non-observance of these rules will surely result in fresh attacks probably more severe than their predecessors.

In the treatment of the paroxysm of an acute attack of articular gout our attention must not be solely concentrated towards the seat of the paroxysm but in addition must be directed to the constitutional state of the patient. As a routine practice before proceeding to any medicinal or other treatment we invariably ascertain the condition of the kidneys, the points for observation being whether or not the kidneys are functionally or organically affected. The examination for albumen must always be made with great care. At the same time it is well to centrifuge the urine from day to day to ascertain the presence or absence of casts - more especially is this desirable during the first week or two, as in the early stages of transition the albuminuria is intermittent. As a rule albumen will only be present in the week following/

following on a paroxysm. It is also important in such cases to have the urine for twenty-four hours collected in order to determine the total amount of uric acid eliminated, and also to estimate the gross output of urea in that time. The possession of these facts, giving as they do a correct working knowledge of the amount of nitrogenous products eliminated by the kidneys, affords one a good and reliable guide as to the measures to be adopted while the case is under treatment. Just immediately following on an acute attack of gout it will be observed that urine is very highly coloured. This is due to the well-known affinity which the urates possess for the urinary pigments, and as in acute paroxysms the amount of urates excreted forms a fairly reliable ratio to the severity of the attack, then by daily observing the tint of the urine one can have a good idea as to the position occupied by the patient.

Let us say that the pain and inflammation is in the usual position, involving the meta-tarso-phalangeal joint of the great toe. The first thing to be done is to place the patient in bed at any rate until the acute paroxysm is over. It is now well to place a pillow under the foot so as to slightly raise the affected/

affected part above the level of the rest of the body. Now seeing that this position would bring the affected part into contact with the bedclothes and so cause excruciating pain, a cradle is placed over the foot and leg for protection. In order to alleviate the intense articular pain warm applications should be applied to the joint affected. Other soothing applications may be tried as by soaking a piece of lint in any spirituous lotion such as whiskey or sulphuric ether in the proportion of a drachm to eight ounces of warm water. Similarly a lotion consisting of one part of Carbonate of Soda to two parts of laudanum and four parts of liniment of Belladonna with hot water eight parts forms a very pleasant and soothing application. Such warm packs should be renewed every four hours. In many cases relief will be afforded by these local measures when the condition fails to respond quickly to medicinal treatment.

In the following case of acute arthritic gout in an elderly woman there was no response to other than local treatment of the joints.

Mrs. F. H. Aet 57. Patient came complaining of acute pain in the joints of the hands. On examination much distortion and gnarling of metacarpo - phalangeal and interphalangeal joints of both hands - the joints most affected being the proximal interphalangeal joints of the left hand. The pain in these joints began a month/

month before admission - came on suddenly during the night - on the previous day patient had only an "out of sorts" feeling. Patient has had rheumatoid arthritis for many years - in her own words "Gout is much worse than the rheumatism". When the pain first came on "was ramping mad with the pain all night." On the following morning she came as out-patient when the joints affected were much swollen, hot and causing much pain on attempting movement. Patient, a woman of stout habit. Complexion muddy with dilated venules over nose and malar prominences. No tophi in ears. Well marked arcus senilis in both eyes. Fingernails are coarse, brittle and striated longitudinally. There are evidences of old iritis, the left pupil being irregular in outline. Her only brother suffers from gout. Has drunk stout for many years now. She was put on a mixture containing wine of Colchicum, minims fifteen, Bicarbonate of Soda grains twelve, Carbonate of Magnesia grains eight, Iodide of Potassium grains five, Spirits of Chloroform minims twenty with water to the ounce - three times daily.

Under this treatment although the pain was lessened it did not subside entirely but continued on during the following two weeks when the following mixture was substituted - Iodide of Potassium grains five, Tincture of Colchicum seeds minims ten, Sulphate of Magnesia one drachm with water to the ounce - three times a day. The pain not being relieved patient was admitted when local warm packs were applied round the painful joints. These latter afforded immediate relief and patient was quite free of pain in a few days and so was discharged. The local applications which were changed every six hours consisted of Carbonate of Soda one part, Tincture of Opium two parts, Liniment of Belladonna four parts, and water eight parts.

Here then is a case of well-marked arthritic gout of an acute nature manifesting itself in an elderly woman whose first manifestations of gout appeared some years after the menopause. Certainly gout in women is not nearly so frequently met with as in men. It is to be noted that there are no tophi present/

present in this case, and altogether it may be said that tophi in women are very seldom met with. Here as in women generally the outward manifestations of the goutiness are displayed in the hands only, so in this woman there is much distortion and gnarling of the joints and crookedness of the phalanges in their relation to one another.

As regards the question of general bloodletting or local depletion by incisions, blistering, or as is most commonly done by leeching - two to six leeches may be placed over an inflamed joint, with these methods of local treatment I have had no experience. The general opinion here is that while there is as a rule no call for the former as saline purgatives fulfil the purpose more efficaciously, there is still less indication for the latter as any local application is very liable to involve a larger area in the inflammatory process and so to add to the future possibility of deformity and stiffness in the joint tissues.

Having determined that there is no albumen in the urine a good routine measure is to begin with two grains of calomel, followed up in four or five hours with such an aperient mixture as the following - being the/

the mistura alba of this Hospital:-

Carbonate of Magnesia grains eight, Sulphate of Magnesia grains ninety with peppermint water to the ounce. This generally produces a free action of the bowels, while at the same time there is no strong purgation which would be liable to do much harm. When however there is rigidity of the abdomen it is well to bring on free purgation, but as a general rule the abdomen is flaccid when it is not advisable to purge the patient. The calomel also acts by relieving portal congestion, hence less glycocine is transmitted to the kidneys and consequently less uric acid is produced.

Assuming that the attack of gout is at its height it is well to begin with the administration of colchicum at once. This is beyond all doubt one of the most beneficent drugs in our possession. By many it is regarded as a pain-killer pure and simple and even if so it would still be of the greatest therapeutic value. This limitation of its value will be discussed later. In our first dose we give thirty minims of the wine of Colchicum with a drachm of Citrate of Potash. The former acts by relieving the pain and inflammation, while the latter has a double action in increasing the/

the flow and diminishing the acidity of the urine. Next morning we begin the patient with a mixture containing a lessened amount of colchicum and to this is added a saline purgative. A mixture much used in this Hospital known as the *mistura colchici* contains wine of colchicum minims fifteen, Bicarbonate of Soda grains eleven, Carbonate of Magnesia grains seven, Iodide of Potassium grains five, Spirits of Chloroform minims fifteen and water to the ounce. This mixture is given three times a day during the subacute stage.

A very useful guide in the progress of the case is the condition of tongue. It will be observed that in nearly every case the attack will begin to pass off with the clearing up of the tongue.

With regard to the use of colchicum and its possible ill-effects, these have been much over-rated. It is only when grossly misused, as when taken in the form of a proprietary medicine, or when taken without medical supervision that we get such untoward effects as diarrhoea with the greenish pea soup-like stools along with great mental depression.

We do not as yet thoroughly understand the action of colchicum on the gouty state, simply because we do not yet know the real nature of the malady itself.

But/

But very likely colchicum acts by virtue of its power in keeping down the amount of uric acid in the blood, hence as the kidneys will be better able to cope with the lessened amount of uric acid there will be less quadriurates in circulation and so less tendency to the deposition of the biurate. It is also held by most physicians that colchicum has in itself a direct action on the liver rendering the bile more liquid and acting as a cholagogue cathartic. The relief of this hepatic congestion then permits the liver functions to again become active, and among other things to deal with the uric acid and transition products which tend to collect there. So then colchicum acts directly in diminishing the amount of uric acid formed and excreted, and although colchicum may not act directly on the articular deposit yet by lessening the real amount of uric acid in the blood this leaves the kidneys free to act on the quadriurates in the blood. As regards the immediate pain killing powers of colchicum this is due to the vaso-depressant action of the drug, which acting on the whole arterial system relieves the tension in the inflamed joints and so speedily lessens the pain. There can be no doubt of this, that act how it may no drug/

drug or combination of drugs has superseded colchicum in the treatment of gout. The following few cases serve to demonstrate the markedly beneficial results which follow on the administration of colchicum in gout.

P. B. Aet 56 Painter was sent into the Royal United Hospital suffering from a severe attack of gout in several of his joints. Had been subject to gout for fourteen years affecting during that time, in sequence his wrists, ankles, elbows, shoulder and hip joints. The gout had quite incapacitated him for his work. After the first attack, up to which time patient had been in the habit of drinking two or three pints of beer or ale each day and had meat in his diet usually twice a day, then entirely stopped taking meats or beer. His father had suffered from gout in the big toes but never so severely as patient.

On admission - Patient presented a plethoric appearance, tongue coated with yellowish fur - teeth worn down - well marked tophi in both ears and in extensor tendons of hands and feet - interphalangeal joints of fingers and toes enlarged - much enlargement of metacarpo - phalangeal joints of right hand - nails of hands and feet discoloured, yellowish and vertically striated - much swelling and redness. (= hyperaemia) over both ankle and knee joints - the slightest movement of joints caused him great pain. Patient was so crippled

that he had to be brought into the ward on a stretcher - temperature on admission was 100° Fahr. which rose at night to 101.2° - the temperature remained at 100° - 101.2° during the two following days and during the three weeks he remained in Hospital the temperature remained at 97° or thereabouts - urine on admission 1020, acid, urates, a trace of albumen but none on any subsequent occasion.

He was placed on the following treatment:-

Placed in bed with cradle to keep off pressure of bed-clothes - locally lint soaked in a solution containing carbonate of Soda one part, Tincture of opium two parts, liniment of Belladonna four parts with water eight parts - this was applied round the knee and ankle joints and changed every four hours. Two grains of calomel were given immediately followed by Carbonate of Magnesia grains/

grains eight, Sulphate of Magnesia grains ninety with peppermint water to the ounce.

Patient was also given one dose of the following mixture, wine of colchicum minims thirty, Citrate of Potash grains sixty with water to the ounce. That same night patient had a good action and next morning felt much easier. He was then put on the following mixture; Tincture of Colchicum seeds minims ten, Iodide of Potassium grains five, Aromatic Spirits of Ammonia minims fifteen, Sulphate of Magnesia grains twenty and water to the ounce. This was given every four hours for three days. Patient was also given eight ounces of the Bath Mineral Waters twice daily.

Three days after admission patient had no pain in the joints when at rest. A week later felt much better his only discomfort being a feeling of stiffness in the joints previously affected.

Three weeks from the date of admission patient was able to walk out of Hospital, the ankles and knees being quite free from pain and exhibiting no enlargement or deformity.

The most notable feature, most typical case of acute gout was the rapid loss of pain which resulted from giving Colchicum internally and applying the above-mentioned lotion externally. Here Colchicum seemed to act like a charm.

I had never before seen a man suffer such agonising pain as this patient did while being lifted from the stretcher into the bed. To touch the joint was enough to make him call out with pain. A few hours after the first dose of colchicum there was a marked alleviation of the symptoms while in three days time the patient was able to move his knee and ankle joints fairly freely and without pain, much of the swelling and/

and hyperaemia having subsided.

The following case which was admitted the same day is an example of one of those cases of gentlemen's servants, who, having access to wines and rich foods partake too freely of them, the result being an attack of gout on reaching middle age.

A. N. was admitted complaining of pain in knee and shoulder joints, also of pain in the proximal interphalangeal joints of both hands. There was a definite family history of gout - grandfather had severe gout in both feet - Uncle subject to recurring acute attacks of gout - Eldest brother has suffered from gout in the great toe of one foot for fully twenty years. Patient during his whole working life has lived well and has to use his own words taken "plenty wines of all sorts and also had a good deal of champagne". Patient a well set up man but has typical plethoric gouty aspect.

No tophaceous deposits anywhere. There is enlargement of 1st interphalangeal joints in all fingers. There is also swelling, redness and pain on movement of ankle, knee and shoulder joints. Urine 1020 - acid no albumen or sugar.

Patient was put to bed, the joints being treated locally in the usual manner. A dose of thirty minims of wine of colchicum with a drachm of Citrate of Potash in an ounce of water was given, while the usual two grains of calomel was administered.

Next morning he was put on the following mixture:- Tincture of Colchicum Seeds minims ten, Iodide of Potassium grains three, Salicylate of Soda grains fifteen, Bicarbonate of Soda grains fifteen, Aromatic Spirits of Ammonia minims twenty, Sulphate of Magnesia grains forty with chloroform water to the ounce. This mixture was given four-hourly for three days and then reduced to three times a day. Patient was also given eight ounces of Bath Mineral Waters each morning and afternoon.

At the end of a week patient could move all the joints freely and without pain with the exception of the/

the left shoulder joint which was painful and stiff on attempting movement. This joint had been dislocated twelve years ago when it remained unreduced for a week - since then he has suffered from rheumatic pains in that joint especially in damp weather.

Patient was discharged four weeks after admission feeling quite well except for some stiffness and discomfort in the left shoulder. He presented himself at the Hospital a fortnight later when he reported himself free of pain.

Here also colchicum presents itself as a pain-killer in gout - the pain having quite gone in two or three days time and full movement of all the joints obtained within two weeks of his admission. I was unable for some few days to understand how it was that the left shoulder joint should remain so persistently painful, until he told me that he had dislocated that joint some twelve years previously.

The delay in recovery of this joint was no doubt due to the manner in which gout fastens itself on to any weak spot in the body, especially so if that be a joint.

The next case illustrates how the public have become aware of the pain-killing properties of colchicum.

W. B. Aet 46. Printer . came to out-patient department suffering from acute gout in the metatarsophalangeal joints of both great toes - went to bed night before feeling quite well but during night woke up with excruciating pain in right great toe and a few hours later/

later in left great toe. Patient had three previous attacks of gout in great toe - first attack was in right great toe five years ago - second attack eighteen months ago, and third attack four months ago in same joints. Had rheumatic fever three and a half years ago and says that the pain in the joints is much worse in gout than in rheumatism. Has drunk beer and malt liquors and of these freely having been on the verge of dilirium tremens.

Both metatarso-phalangeal joints were red, hot and swollen the venules coursing over these joints being swollen and turgid. He asked for some colchicum "as that will stop the pain and I will be all right by tomorrow." I gave him two grains of calomel and enough of the following mixture to last a week taking it three times a day:- Wine of Colchicum minims fifteen, Citrate of Potash grains twenty, Sulphate of Magnesia grains forty with water to the ounce. I asked him to come back again in two or three days time. When he did so he reported that the pain had quite gone and that he was feeling all right again.

The following is another case of an acute attack of articular gout treated with colchicum - recovery in a few days.

T. C. Aet 72. Formerly carpenter. Complains of pains in knee and ankle joints also elbow and finger joints. Present attack began ten days ago. Two attacks before this - First, thirty years ago, Second, twenty years ago. Never in big toe.

On admission - Skin flushed and moist - no tophi in ears - tongue moist and smooth - teeth much ground down - redness, swelling and oedema of both hands and feet - tenderness and swelling of both knees - pain on attempting movement - urine 1020, acid.

He was given a pill containing one and a half grains of blue pill with three grains of colocynth and hyocyamus pill. The following mixture was given:- Wine of Colchicum minims twenty, Citrate of Potash grains twenty, Iodide of potassium grains four, Salicylate of Soda grains seven, Carbonate of Ammonia grains three with peppermint water to the ounce.

This was given every four hours for two days when it was reduced to three times a day.

The/

The condition of the teeth here was very typical of that so often seen in the gouty state. In examining such patients it is surprising how often one comes across the front teeth of the lower maxilla ground down to a very considerable extent. What the reason of this is it is difficult to say exactly. It is well known that "tooth-grinding" during sleep is often a symptom of gout. The teeth, however, in gouty subjects are as a rule strong and good and the yellowish tinge which it is the custom to describe as being a sort of special feature in gouty subjects is usually present in other people of a similar age. Very noteworthy however, is the fact that the teeth of gouty subjects seem to resist decay, and would rather as it were wear away than decay.

Even in the chronic states then practice has shewn that the judicious administration of small doses of the Tincture of Colchicum Seeds or the Wine of Colchicum results in much benefit to our patients. It must be said however that cases do occur where colchicum can either not be tolerated by the patient, or where the after effects of a paroxysm are not so good as they would have been had the colchicum been withheld. For instance some patients will ask you not to put them on colchicum but prefer rather to go through the pain of acute gout or be treated locally/

locally only as they find that if the paroxysm is cut short too abruptly by the administration of colchicum that they do not at once recover that feeling of well-being, nor do they remain well for as long as usual after the attack.

Then again there is another aspect - more psychological than medical perhaps - which the physician must consider with some patients; namely, whether it is well to give colchicum to patients, who, living in the knowledge that they can fly to colchicum whenever an acute paroxysm comes on, weakly give in to their appetites for rich foods and wines. With such patients little can be done except to attempt to train the patient to restrain himself as much as possible. Such a person must surely go on to increasing frequency of the paroxysms and any of the irregular manifestations may appear at any of these bouts. The use of colchicum in the treatment of gout when there is any likelihood of metastasis - as in cases where such has occurred previously, also its use in the treatment of the irregular forms of gout is less certain. In such cases it is the general rule to administer small doses of the drug and always to be on the look-out for untoward signs. The following is a case of Retrocedent Gout beginning as visceral gout and ultimately becoming arthritic/

arthritic in which, on the diagnosis becoming manifest, colchicum was employed in small doses and with caution.

W. H. Aet 73. Admitted complaining of abdominal pain in region of umbilicus. Had had pain two days - pain continuous - had a similar attack two years ago which lasted six weeks - thinks he caught a chill - has been quite healthy otherwise - bowels open daily - was given simple enema on admission but had just as much pain after enema had been given as before - on the following two days he still had the abdominal pain a free action of the bowels after giving an ounce of castor oil did not relieve the abdominal pain. On the third morning after admission the abdominal pain suddenly left him and concurrently with its departure patient developed pain in the metacarpo-phalangeal joints of both hands and pain and swelling in the right knee. A lead and alum lotion was applied to the knee and the following mixture was given:- Tincture of Colchicum seeds minims five, Carbonate of Magnesia grains ten, Iodide of potassium grains five, Sulphate of Magnesia grains thirty with water to the ounce. This was administered every four hours for two days and then given three times a day. In a week's time patient was quite well with the exception of a little stiffness in the right knee.

A case of retrocedent gout in which the condition was not diagnosed till four days after admission. On admission all possibilities such as hernias were ^{but} considered, visceral gout was not thought of - nothing definite could be made out - no relief was given on emptying the lower bowel the pain continuing very bad till the third morning after admission when the patient complained of severe pain in several of his joints - the abdominal pain at the same time disappearing - the patient was placed on colchicum and next morning was/

was practically free of pain, and by the end of a week was able to get about being entirely free of the abdominal and arthritic pain.

This is an unusual way for an attack of metastatic gout to manifest itself. Usually it is from the joint to some one or other of the viscera that the gout flies. This patient however is the sort of person one is inclined to associate with metastatic gout being old and of weakly constitution. The treatment of such cases depends greatly on the period at which the condition is diagnosed. If the case had been diagnosed on admission then in all probability a mustard leaf placed over the epigastrium would have afforded relief. The purgation which was prescribed was probably the best thing that could have been done. Once the articular stage had been reached then all one could do was to treat with colchicum and treat the joint locally as in other cases of articular gout, the only difference being that less than half the usual dose of colchicum was given so as to abort if possible any return of the metastatic tendencies already exhibited.

The following is a similar sort of case in which there was acute abdominal pain with pains in the legs in/

in a manifestly gouty subject. That such severe attacks of visceral gout do occur quite independently of any preceding attack of articular gout cannot be doubted.

S.A. 64. Wheel-chairman. Was seized with violent colicky pains in abdomen which came on, on the evening previous to admission - retched occasionally - has for some years attended this Hospital as out-patient with gout in knees and various other joints - first attack was in great toe six years ago - drinks as much beer as he can get - fingers gnarled with tophaceous deposits - neither parents nor grandparents had gout. On admission given the following every six hours for two days and then three times a day:- Tincture of Colchicum seeds minims five, Iodide of potassium grains five, Sulphate of Magnesia grains thirty with water to the ounce. He was also given the usual eight ounces of mineral waters morning and afternoon.

Here under small doses of colchicum the pain almost immediately subsided. In such a case as the above we arrive at our diagnosis by a knowledge of the previous history of the patient - his hands alone being suffice to put one on the right track. Of other drugs used in the treatment of acute gout the Salicylate of Sodium is highly recommended by some physicians who have had an extensive practice in gouty conditions, but even such men as Sir Dyce Duckworth and Dr. Ralfe who have written most on the subject find it much less satisfactory and more uncertain in its effects than colchicum. Other observers as Dr. Luff hold that the administration/

administration of the salicylates in any form are positively harmful in their effects. I have had but little experience of their action in the acute forms of gout but have given them along with colchicum in the chronic stages with apparently satisfactory results. The use of alkalies in the treatment of gout was doubtless suggested by their tendency to counteract the acidity in the blood, and when such salts as the Potassium, Sodium, Ammonium and Lithium salts are given in plenty water they are soon excreted by the kidneys and depending on the form in which they are administered as citrates and tartrates are excreted as carbonates and so neutralise any free acidity which may exist. It is necessary when giving these alkalies to have them freely diluted. The usual dose in which to administer these salts is in twenty grain doses freely diluted three times daily. The salts most in use are the potassium salts - the acetate and citrate. These potassium salts while at the same time possessing a diuretic action, seem to act specially by their affinity for uric acid and there form a very soluble salt which can very readily be excreted. The above salts may be employed in large doses - until such doses as produce alkalinity of the urine have been reached. The only objection/

objection which can be urged in thus pushing these salts of potassium is the depressant action on the heart which they are said to possess. Under these circumstances it is well whenever the subacute stage has been reached to cut down our dosage to a half or one third, and as has been suggested to give some stimulant such as Sulphate of quinine with the citrate of potash to counteract this tendency. As to the dietetic treatment in acute gout it must of necessity vary according to the circumstances of the case - the patient's habits and former mode of dieting must be looked into very minutely. The usual plan is to ask the patient to give a detailed account of his usual dietary for one whole day.

Naturally also one's instructions as to dietary would be very different in a case where the patient presented the typical rubicund and plethoric state of body from that in which the patient was debilitated and feeble in body. In all cases however during and immediately following on an acute attack of gout the diet must be so selected that it will produce the minimum quantity of uric acid, and will at the same time be unlikely to produce any gastro-intestinal fermentations and disturbances. All food must also be bland and unirritating to the kidneys. At this time/

time in these plethoric cases we prescribe a diet consisting of milk with a little arrowroot while bread and milk, milk puddings, semolina puddings, rice puddings, sago puddings and tapioca puddings may be given. If tea is given it is preferable to infuse it with boiling milk. With this may be given a small piece of thin toast with butter. Such a mild non-stimulating diet should be kept up for a few days, at anyrate till the acute inflammatory processes have subsided. Such articles of food then as white fish, chicken and green vegetables with perhaps an egg to breakfast may be given but this is the most you would allow. More important still is the question of what the patient must not take - certainly alcohol in all its forms must be avoided during the acute stage unless such complications as cardiac weakness indicate its use. In such circumstances the safer way is to prescribe a small quantity - not exceeding two or three ounces in the twenty-four hours - of whiskey or brandy well diluted in salutaris water these being the least injurious forms in which alcohol can be given in the gouty state. In no case should the patient be allowed any beer, cider or any form of wine during an acute attack. Nothing is more certain than that you will be/

be asked for such stimulants while the patient is yet in the acute stage. Some patients however will insist on having wine and if you have first of all explained to them the risks they incur and they still persist, then it is one's duty to prescribe for them some one or other of the least harmful forms of wines.

Such are very sound Moselle, Claret and Hock while also the weaker kinds of ales may be given, but at anyrate as long as the acute attack lasts it should be our endeavour to make the patient for the time being a total abstainer. Then again meats and nitrogenous foods are contra - indicated in acute gout owing to the tendency such foods have to cause irritation of the kidneys and so to hinder the free excretion of uric acid, while at the same time loading the system with uric acid and the transition compounds. Thus even the fluid beefteas and meat extracts and essences must be avoided.

During the period between the paroxysms the treatment should be directed to a careful attention to the proper dieting and regimen rather than prescribing medicinal treatment.

In the early part of these intervals, just after the acute paroxysm has passed off, the patient feels languid/

languid and unfit for any prolonged exertion either mental or physical although "in himself" he will say he feels much better. The attack seems as it were to have cleared the system of some morbid products, but leaves the patient in much the same debilitated condition as one sees after any other acute disease. We must attempt, however, to relieve the portal congestion and combat the gouty tendencies by attention to the bowels so as to secure a free motion once or twice daily, one of the best drugs to effect this is guaiacum resin given in small doses of five to ten grains, administered in cachets three times a day. Not only does guaiacum act as a gentle laxative and as a stimulant to the action of the kidneys and skin, but it apparently has a specific action in relieving gouty inflammations. One of the great advantages of taking guaiacum is that it can be taken over long periods without giving rise to any trouble more than a papular rash which however only occurs after the resin has been taken in considerable quantity. A powder introduced to the profession by Sir Alfred Garrod is held in much favour:- Guaiac resin powder drachms six. Powdered cinchona bark one ounce, Carbonate of ammonia drachms two, Citrate of potash drachms two, Iodide of potash/

potash drachm one, powdered colchicum corms drachm one. These ingredients are mixed together into a powder and forty grains or so is taken in some water once a day for a week, then a week is missed over and is re-commenced on the third week. This treatment can thus be carried over a prolonged period.

These gouty subjects often require stimulant tonics and stomachics. If there is any anaemia then, although, iron preparations are as a rule not well borne, some wine of iron with two minims of liquor arsenicalis may be given two or three times a day over a period of some weeks - special attention however must then be paid to the bowels, and should they become constipated then an occasional blue pill at night followed by Epsoms Salts in the morning following will bring about a good purge. Another drug which may be given with much benefit at this time is Phosphate of Soda in half-drachm doses three times a day. It is mildly laxative and exerts a tonic influence on the patient. It is easy of administration and is tasteless when given in tea or weak beeftea or chickentea.

Much however will depend on the conduct of the patient himself. All previous bad habits whether it be rich living, excess of wines or beers, lack of sufficient/

sufficient exercise and fresh air or inattention to the natural functions. These must be reviewed and if the patient is wise he will go through a course of self-searching and examination noting his errors, and then laying out for himself a course of life which will remedy these faults. Thus his life in future will require to be one of moderation in food and preferably total abstinence as regards alcohol. Attention to these along with a necessary amount of daily exercise will do much to effect a cure.

Unfortunately however these patients are usually so self-indulgent and lethargic by nature and by custom that they have formed habits which they either lack the will-power to combat, or are placed in such circumstances in life which do not permit of their being altered to any appreciable extent. Furthermore it is not by abstention from any one big thing, but by attention to a number of small details which decides his future .

For such a man it is necessary that he should in future live the simple life. As a first principle he should abstain from all alcoholic liquors, the only legitimate indication for which being a weak heart and general bodily weakness, and in such cases the stimulant/ -

stimulant should be given in medicinal form only. Especially should this abstinence be observed in those cases occurring in early life in persons the subjects of the gouty diathesis.

For the reasons before-mentioned the patient must be subjected to as little mental and physical fatigue as possible - sufficient exercise however being taken to ensure proper bodily metabolism. He should get to bed early, say at ten or eleven o'clock and have eight or nine hours. On rising he should have the usual cold or tepid morning bath with a stiff walk before breakfast. Breakfast should be sufficiently nourishing as to sustain him so that a heavy mid-day meal will be unnecessary. Any meat which may be taken should be reserved for dinner, and then taken only sparingly. No definite rules, however, can or need be laid down. All that need be done is to make the patient realize the necessity of leading a regular and temperate life as regards food, drink, exercise and sleep - everything in fact. Then there is every chance that his first attack of gout will be his last.

Warn such a patient, however, that any indiscreet break into this equability in life may result in the undoing/

undoing of months or years of patient self-restraint. It is hardly necessary to say that all food, while being plain and nourishing, should be well cooked and nicely served.

In the treatment of chronic gout all that has been said before regarding our efforts to render the general condition of the patient as healthy as possible must of course again hold good. The diet best suited for a person the subject of chronic gout is a varied one. As has already been pointed out no hard and fast rules can be laid down. In the diet as in everything else in gout, each patient must be considered individually taking into consideration his digestive capacity for various articles of food along with his habits as to exercise, nature of occupation and so on. Our aim then is to supply a sufficiency but not an excess of albuminous foods so that the patient may be properly nourished and sustained.

It is held by many that the best diet for a gouty subject is a purely vegetable diet but this assertion is open to question. It may be all very well in theory, but in practice it has been found that cases do better when there is a small daily allowance of animal food. Those who advocate total suppression of meat food in the gouty do so on the grounds that they contain an excess/

excess of uric acid, and so are directly harmful. On the other hand we know that gouty people as a class have a greater liking for meat diet than any other form of food, and if this is given in the form of fish, chicken, game or meat - always of course restricted in amount - then we find that it is easily digested and is of real benefit to the patient in keep up of his strength and general bodily nutriment.

Of course such a patient would do well to abstain from the richer meat soups such as hare soup, oxtail soup and similar dishes, while, all tinned, salted or food preserved in any way, must be avoided. The quantity of meat allowed to a patient must always be determined by the needs of the system for albuminous material. It may be considered beyond the region of therapeutics to give a favourable prognosis to a patient who, while in the subacute or chronic stages of gout, still manifests a desire to indulge in the pleasures of the table, and without the co-operation of the patient in this matter of diet and regimen it will be useless to attempt to combat his gouty tendencies. It is well at the same time to study to a certain extent the desires of the patient as to the food he would like, as leaving out of account anything in the nature of a liking for rich/

rich foods or excess in diet, the wishes of the patient form a very reliable indication as to the foods which will be best tolerated by his stomach.

So then the subject of chronic gout must learn to exercise moderation - using this word in its true meaning, for if on the other hand he become too abstemious in his dietary his whole constitution would become weakened and thereby lay open to gouty attacks those weak spots. We have noticed that during the acute stage the patient was strictly limited in his diet to such as milky and farinaceous foods, with such additions as mutton and chicken tea, but now we may gradually improve the dietary. A certain amount of vegetable foods ought to be taken each day. He may have such vegetables as Brussels sprouts, cabbage, potatoes, French beans, turnip and so on the only point to watch for being the possible onset of dyspeptic symptoms.

Here again we must take into account the patient's own experiences as to which vegetables he can digest best and let him have those. If such an attack of dyspepsia should occur it will be found better to again reduce the patient to milk diet for a couple of days by which time the dyspeptic symptoms will have abated. It must always be remembered that the subjects of chronic gout are often the subjects of dietetic idiosyncracies, and with/

idiosyncracies, and with regard to such it may very safely be left to the patient's own experience as to the avoidance of any particular article of diet.

Any foods known to be coarse or indigestible such as oatmeal, brown-bread or nuts should be avoided.

Pastry, sweets, cakes, ices and preserved fruits also should not be taken. All so-called delicacies such as kidneys, liver, thymus, and sweet-bread must be avoided as they contain too highly albuminous materials.

All sauces, chutneys, mustard and so on must be struck out of the list as all these tend to the production of an excessive amount of uric acid without a corresponding increase in the amount of urea eliminated.

Moreover it does not make any difference whether the albuminous substances be of animal or vegetable origin, on the other hand it is probable that the less liability to the deposition of biurate while on a diet mainly composed ^{of} vegetables is due to the larger proportion of saline constituents in vegetable foods which act by rendering the sodium biurate more soluble.

As to laying down rules for dieting a gouty patient this is almost an individual matter. It is better for some people to have their principal meal in the middle of the day, while for others a late dinner is more convenient/

convenient. On the whole the mid-day dinner is to be recommended. If so such a dietary as the following may be prescribed.

8 a.m. (or at hour of rising) ten or fifteen ounces of hot water, which should be slowly sipped while dressing.

9 a.m. (Breakfast) half a pint of fresh and lightly infused tea with one lump of sugar, thinly buttered toast with a lightly boiled egg should it agree with the stomach, or for this latter may be substituted a little white fish or white meat.

1 p.m. (Dinner). No soup is allowed - fluid taken should only be water flavoured if desired with lemon. Such fish as whiting, sole, plaice, flounder, cod, turbot and mullet may be allowed. If fish be taken, then no meat should be partaken of. Small allowances of the most digestible forms of meat such as mutton, beef, chicken and so on may be taken. Pork, salted meat, veal, smoked fish and pickled foods must be avoided. Along with any meat taken fresh vegetables - cabbage, celery, Brussels sprouts, spinach and potatoes should be taken, but such vegetables as rhubarb, asparagus or tomatoes, which would tend to produce irritation of the kidneys and liver must be left out.

5 p.m. (Tea) half a pint of weak freshly infused tea along/

along with thin buttered toast.

10 p.m. (or an hour or so before retiring to bed) the patient should slowly sip a pint of hot water flavoured with a slice of lemon peel.

The adoption of a purely milk diet in chronic gout has been tried and found wanting. This goes contrary to what we should expect judging from its nutritional qualities. The disadvantage seems to be this - that while the patient gets on well enough with the milk diet for the time being, yet when he recourses to ordinary diet afterwards, then the more irritating nature of the food has the effect of so disturbing the constitution that the patient will in all probability have a return of the gout in an aggravated form.

As regards the use of tea and coffee in gout, it is quite unnecessary to lay down any restrictions as to their use, provided that moderation in their use is always preserved, and also that these beverages are freshly prepared.

In those case of gout which are associated, as so many of them are, with obesity the dieting of the patient is somewhat in the nature of a problem. The feeding of the patient on a diet composed almost entirely of proteid foods such as lean meat, fish, eggs and/

and vegetables can hardly as a system be considered in the treatment of the gouty state owing to the resulting excessive accumulation of waste products in the system. In such cases the method we adopt is to give the patient a diet largely consisting of proteids, but along with this to let the patient drink 'ad libitum' of fresh spring water and thus get the mechanical washing out of these waste products. It must here be urged that gouty people, and indeed many others affected with its close ally chronic rheumatism, do not drink nearly enough water.

By so abstaining these waste products accumulate in the body, and the auto-intoxication which results gives rise to these indefinite discomforts - megrains and so on - while by simply drinking a glass of warm water before each meal these residues are washed away from the body. Better still is it to give the patient the mineral water, which by their constituents act against the formation of the uric acid. The following out of this plan in giving the patient a large glass of warm mineral water an hour or so before each meal gives excellent results, not only reducing the natural obesity but also the constitutional gouty habit. We also have to consider the special points to/

to attend to in the dieting of a gouty subject in whom the digestive powers are such that they are unable to utilise or store up all the food ingested. There we must give the patient a sufficiency of carbohydrates, vegetables are usually well tolerated but in such cases it is usually well to cut out all red meats. Fish and fowl should be given as these are best suited to replace the loss of proteid matter from the body.

To come to another factor in the treatment of gout too much stress cannot be given as to the importance of exercise. Excepting during the acute paroxysms a certain amount of daily exercise should be prescribed. With the patient constantly in a state of resting a sort of stagnation seems to occur in which the waste products are allowed to remain in the body. The great point about exercising a gouty patient is to educate him - to teach him the necessity of a moderate amount of daily exercise. There must however be no fits of excessive physical energy as such would tend to bring on an acute attack. The nature of the exercise must of course largely depend on the condition of the patient. It goes almost without saying that no real gouty patient is willing to exercise himself, though nearly all are able to do so. It is for the physician to make him appreciate his ability to do so. In practically all of/

of my cases of gout from the very first the patient has been massaged two or three times daily. Immediately after the acute stage has passed off then passive movements should be commenced, and soon after voluntary movements of the joints should be encouraged. At this early stage some difficulty will be found in getting the patient to carry out your instructions owing to the pain, but once started it is surprising how easily movement takes place. As to the best kind of exercise for the chronic state there is none better than walking, and when this walk is taken in the open air the benefits derived are soon very evident.

At the same time the patient must be cautioned not to expose himself in cold or wet weather, and in all his exercising even in summer weather it is well to advise him to wear flannel next his skin. The following is a case of stiffness in the joints following repeated attacks of arthritic gout and the method of treatment employed.

J. A. 30 Footman. A month ago had pains in the joints of toes and ankles accompanied by redness and swelling. On admission swelling and stiffness of these joints with also stiffness in right hand and elbow. Has had slight attacks of gout on and off for seven years which has left some stiffness in knees and shoulders.

Small blisters were placed over the joints and patient was given internally a mixture containing Potassium Iodide grains five, wine of colchicum minims seven, Sulphate of Magnesia grains forty with water to the/

the ounce every four hours. He was also given ten ounces of mineral waters morning and afternoon. Passive movements and later on voluntary movements were begun and in two weeks time very little of the stiffness remained.

The above case illustrates the subsequent stiffness which occurs after gout and becomes more and more marked with each successive attack. This stiffness is due to textural changes taking place within the joints, and while they do occur in the joints of the hands and arm, yet we find them most often in the joints of the lower limb. This stiffness must be treated during the early stages or otherwise it is apt to become more and more marked till true ankylosis even may set in. As soon as the acute inflammation has subsided, passive movements and massage should be employed while the joints should be rubbed well with some stimulating liniment. Such patients as this must be encouraged to use their joints, and so should be ordered to walk a little each day preferably uphill. They should go on with this walking exercise till they can do four miles without fatigue. The most successful mode of treating such stiff joints is undoubtedly by the use of the hot mineral baths. These patients should be given the Deep Bath for about fifteen minutes at 100°Fahr. with local application of the undercurrent douche at 104°Fahr. during the last five minutes.

During/

During the whole time the patient is in the bath he must move his joints freely, and it is wonderful with what facility he will be able to do so after being in the bath for a few minutes.

These baths ought to be taken three or four times a week and the results of their use is exceedingly satisfactory.

The result of all this exercise is due to the oxidation of the tissues and consequent tissue change so that there is speedy elimination of waste products in the excretions, skin, urine and respirations which are all increased after exercising. One word concerning the relation of meal times to exercise. We know that in ordinary life it is very inadvisable to get up immediately after a meal to exercise - so also after exercising there is a certain amount of general bodily fatigue. Naturally the stomach shares in this fatigue and this accounts for the comparative inability on the part of the stomach to cope with a meal after taking exercise. These points while not of much account in the healthy state are of paramount importance in the gouty state where the stomach and body generally is more or less in a state of unstable equilibrium. So therefore the gouty patient should be told to rest for some time after his walk - say for half an hour - before/

before partaking of a meal.

Now as regards the use of alcoholic drinks in gout it may be laid down as a general rule that alcoholic beverages ought to be abstained from in persons who are the subjects of gout. There can be no doubting the evil influence which alcoholic drinks have on the gouty state probably by their action in lessening the oxidation of the body tissues. Now it is said that those forms of alcohol which have been obtained from fermentation and have not been distilled exert a more prejudicial effect on the gout process than do those which are obtained by distillation. Thus such liquors as gin, brandy and whiskey are not considered to be gout-producers, while there can be little doubt but that the stronger wines and malt liquors are directly injurious. Even on this subject however there is the greatest difference of opinion among those who have studied the subject both from a professional standpoint and also by those who are really best qualified to judge, namely the patients themselves. Of course whenever possible a patient who is the subject of gout should entirely renounce all alcoholic beverages, and to the man who has the strength of mind to take this step, he will be fully rewarded. But in most cases/

cases it will be found that long habit in taking alcoholic beverages will be so fixed, that the patient is either unable through lack of moral strength, or unable through physical weakness to entirely dispense with them. If such as the latter be cut off entirely from alcoholic then they would develop dyspeptic symptoms, depression of spirits and so on. Alcohol should however only be prescribed when the indication for their use is evident such as dyspeptic symptoms with loss of appetite in which the patient is much debilitated.

When total abstinence cannot be enjoined we must advise the patient as to the forms of alcohol which it is permissible for him to have, always on the understanding that strict moderation will be observed.

In every patient during the acute stage alcohol in any form must be withheld. All physicians agree that the most suitable form in which to administer alcohol to a gouty patient is by giving a tablespoonful or so of old whiskey or brandy with plenty water sipped slowly along with, or immediately after meals. This gives the required stimulus to the digestive organs. Certainly whiskey has a much less harmful effect in the gouty process than the wines and malt liquors.

Writers/

Writers on the subject have never tired of comparing the prevalence of gout in such parts of England where wines and malt liquors are the popular beverages, with the almost complete immunity which exists in countries like Scotland where whiskey is the beverage of the masses. The gout producing qualities of alcoholic beverages seems to be in proportion to the amount of acids and sugars present in them. Now wines and beers contain a large percentage of acids and sugars, while the distilled spirits are practically free of them. In wines the gout-provoking acids are mainly tartaric and malic acids, the latter being present in largest amount in cider whose gout-provoking characters are so well established. Although cider may be partaken freely by persons who have no gouty taint it must be abstained from by persons the subjects of gout for as has been said "if they have gout in them, cider might feed it." The effects of the various wines vary much in degree - full bodied wines containing much unfermented matter are extremely liable to produce or to aggravate the gouty state as also are the old wines prized by epicures for their bouquet. These probably act partly on account of their natural acidity and also because of the ethereal compounds present in them which affect the/

the gouty condition by acting on the liver and bringing about an increased production of glycocine, which being taken up by the blood is passed on to the kidneys resulting in an increased formation of uric acid.

Still there is a considerable amount of difference of opinion as to the direct relation of this acidity of wines and also to their gout-inducing power. For instance the wines possessing most acidity are Moselle, Rhine wines, Burgundy, Madeira, Claret, Champagne, Port, Sherry and least of all the malt liquors. Yet as a matter of common knowledge and experience those wines possessing most acidity have the least gout-inducing power, whilst those ^{containing} least acid such as Port, Sherry and Champagne are notorious on account of their gout-inducing power.

It is still held by some that the consumption of wines rich in acids were instrumental in bringing on the gouty attacks by rendering the liquor sanguinis less alkaline and so aiding the conversion of sodium quadriurate into the biurate, which latter being the less soluble was thus deposited in the joint tissues.

It is to the sugars contained in those beverages that others look to as being the principal cause of gout, but beyond mere clinical observation there is no direct evidence that even this is the true cause.
Garrod/

Garrod has made a series of elaborate experiments to test whether or not the ethereal compounds present in these wines had any appreciable effect. He extracted the ethereal salts from old wines, and with these volatile substances acted on the biurates and quadriurates of sodium and failed to find that such had any effect in the conversion of the quadriurate into the biurate, or in hastening the precipitation of the latter.

He holds the opinion that the whole action of the wines in bringing on an attack of gout is due to a derangement in the action of the liver in which metabolism is impeded and where there is an increased production of glycocine, which passing on to the kidneys causes increased production of uric acid which if imperfectly eliminated must be retained in the body tissues and give rise to gout or some of the allied disorders.

It is generally held that the stronger wines such as Port, Sherry, Burgundy, Beer and the Malt liquors are all strongly gout-inducing, but that such is always so is not correct.

Some patients who are the subjects of true gout will tell you that if they give up their beer, cider or ale, they will as surely lay themselves open to an attack/

attack of acute gout. The same also holds good with better class patients who are in many cases fully persuaded that they hold their gouty tendencies in check by taking such wines as port, sherry and champagne. That such is a proper course to pursue is open to question, but each patient must in this matter be guided by his own experiences. If he be a conscientious man his former experience will tell him which form of stimulant is best suited to his constitution. Moreover after a man has reached past middle age it is inadvisable for one to insist on any sudden restriction in his stimulant, as such has been known to result in a physical breakdown. It is always a good thing, however, to advise that any stimulant taken should be well diluted with water, and should be taken only at meal-times. Also caution the patient against mixing drinks as this can only produce evil effects. So far as one can dogmatize on this subject, the experience of many physicians has shown that owing to the harmful effects that both Burgundy and Champagne exercise on the gouty state, they should both be dropped by gouty subjects. As regards all other wines if the patient insists on having them, then all you can do is to caution him to partake sparingly of them and only to drink old wines of the best quality.

In/

In such patients as cannot afford to buy these, then they would do well to confine their alcoholic indulgences to brandy and whiskey and to take these well diluted.

Turning now to look into the use of Mineral Waters in gout we find that they have attained to a great reputation in the treatment of gout and the gouty state, both by employing them in water drinking and in the form of baths. In most cases of gout where hydrotherapy is applicable, there can be no question that the best method of employment is by a combined use of the mineral waters in drinking and the taking of baths. Naturally the waters of the various spas vary widely as to their composition and consequently as to their action on the system. Of course the main therapeutic value of these mineral waters lies in the influence of the water itself both when taken inwardly in large and regulated quantities, and when employed in the form of baths. In addition to these purely mechanical effects, we have in the waters of the various spas differences in temperature; in some the presence of sulphur; in other the presence of saline ingredients, alkaline carbonate, sulphates of soda, magnesia, iron, and so on, to which preponderating ingredient the therapeutic value/

value of the waters is due. Taken along with these, the undoubted benefits which practically all patients derive from a visit to a spa are in part due to the fact that for the time being they are under the care of a physician who is thoroughly conversant with all joint conditions and with the gouty state in particular, also by the attention paid by patients while at a spa to the regimen and the medically supervised dietary.

In addition to this the regulated open air exercise in what is usually an elevated district, with the bathing and friction of the towelling which follows , and not least of all the benefits which must accrue from a break in the monotony of the daily routine of business life - in fact the enjoyment of a proper holiday, in which the patient feeling that money is being spent on a course of treatment thereby more readily submits to any restrictions and changes in his regimen and diet which the physician may see fit to enforce, to which the patient either would not or could not submit while at home attending to the ordinary duties of everyday-life.

Hydrotherapy more than any other form of treatment illustrates the dictum that in treating the gouty state we must treat the individual and not "the gout".

The use of the mineral baths can only of course be open/

open to those who are in a state of otherwise good health, and the prescribing of a course of baths to patients who are debilitated from cardiac or renal disease or from acute disease of any kind is not good practice.

To begin with it may be said that the mineral waters 'per se' have been accredited with curative powers far beyond that which they in reality possess. It may safely be said that no patient will receive much relief through treatment by the waters themselves. When however taken in conjunction with the other measures, medicinal, dietetic and regiminal the therapeutic action of the waters is undoubted.

These waters are given with various objects. The mere drinking of large quantities of water stimulates metabolism and increases the various bodily secretions, thereby tending to relieve gastric, renal and hepatic congestion and to promote a freer flow from the various excretory glands. This flushing out of the patient must always be of benefit, while the freer dilution of the blood must carry off the waste products of metabolism, and so prevent the deposition of sodium biurate in the tissues and organs. When to this water an alkali is added then we have in addition the blood serum rendered less acid and so the patient is guarded/

guarded from possible uric-haemia, while with the addition of saline ingredients to the waters we have the aperient action of the waters thus getting rid of hepatic congestion and also of the stagnation in the bowels.

Along with water drinking we employ the thermal mineral baths which have a very beneficent action on articular gout either of recent or long standing duration. It is truly surprising the effects these baths have in cases of chronic gout. Patients who come to Bath practically crippled often being quite unable to do more than hobble along by the aid of crutches will in many cases, after a three weeks course of deep baths at 100° Fahr. for fifteen minutes daily followed up by ten minutes massage, be able to walk quite well without aid, and curiously enough when they return for another course of baths after an interval of from three or four years ^{they say} that the benefit they derived lasted during the greater portion of that period, enabling them to follow out their occupation.

The baths also act on the skin glands causing an increased and more normal action of the sweat and sebaceous glands, the former affording relief to the kidneys and themselves getting rid of much waste products/

products. Then again the friction of the towelling which follows a bath affords the patient a daily generalized massage.

The drinking of hot mineral water which constitutes such an important feature of the course of treatment in Bath gives excellent results from the promotion of the excretion of uric acid and gravel. In this Hospital we give it in quantities of eight to ten ounces twice daily - morning and afternoon or evening.

Undesirable results may follow the drinking of too much water, owing to its upsetting the digestive processes..

One point which should be specially looked into by the physician in the choice of a spa, should be the determination of the amount of sodium contained in the waters. Sodium salts have an undoubtedly harmful effect in the gouty state as they hinder the removal of gouty deposits, hence it is desirable to choose a spa where sodium salts are either absent altogether or present only in minute quantities.

Fortunately such spas exist in this country at Bath, Strathpeffer and Buxton. Things being equal it would be well if physicians in this country would encourage the home spas where the baths appointments and/

and other arrangements compare very favourably with the continental spas to which it is considered more fashionable to send patients.

In the winter months there is really only one spa in this country to which patients can go - namely Bath, and owing to the mildness of climate and equability of temperature this spa possesses a great advantage over the various continental spas. The baths at Bath are open all the year round, but the favourite seasons are the spring and autumn. The baths here are under excellent management.

There is a medical advisory committee whose duty it is to enquire into and report on every new apparatus or appliance in connection with new methods of treatment, also on improvements suggested on methods already adopted. Having agreed to and reported on any matter no matter what the cost may be, the necessary requirements are obtained by the City Council who own all the baths and who consider the baths as the chief asset of the City. In this way during the past few years many changes and great advances have been made, the baths having now reached a state of excellence and luxury at least equal to, if not exceeding, that of the most popular foreign spas.

There/

There are three Thermal Springs in Bath all having a common origin, but the outlets are different the temperature varying within a short range. For thousands of years these springs have poured forth their waters to the amount of half-a-million gallons per diem without variation in either quantity or temperature.

One Thermal Spring supplies the King's Bath; the fountain in the Grand Pump Room; the Private Baths; the Tepid Swimming Baths; the New Royal Private Baths and the Royal Mineral Water Hospital Baths. This first spring is the most highly mineralized of the springs, and has a temperature of 114°Fahr. Its analysis is as follows:-

| | grains per gallon |
|------------------------------|-------------------|
| Calcium sulphate | 102.880 |
| Strontium sulphate | 2.030 |
| Sodium sulphate | 23.500 |
| Potassium sulphate | 0.207 |
| Calcium carbonate | 8.750 |
| Magnesium chloride | 15.800 |
| Sodium chloride | 9.080 |
| Lithium chloride | 0.120 |
| Silica | 1.960 |
| Bromine | Traces |
| Nitrates | " |
| Carbonate of iron | 1.600 |
| | <u>165.927</u> |

There is no evidence of organic impurity, as
the
is shown in figures -

| | grains per gallon |
|------------------------------|-------------------|
| Saline ammonia | 0.007 |
| Albuminoid ammonia | 0.004 |

The second spring supplies the Cross Bath, in which the quantity of mineral salts is below that of the other springs, while sulphate of sodium is comparatively small in amount but it contains more iron in solution than the other two. In this as in the other springs there is no trace of organic impurity.

The third spring supplies the Hetling Pump Room from which the Rôyal United Hospital Bath is supplied. Its analysis is as follows :-

| | Grains per gallon. |
|------------------------------|--------------------|
| Calcium sulphate | 84.720 |
| Strontium sulphate | 1.890 |
| Sodium sulphate | 15.870 |
| Potassium sulphate | 0.207 |
| Calcium carbonate | 8.750 |
| Magnesium chloride | 15.670 |
| Sodium chloride | 13.120 |
| Lithium Chloride | 0.100 |
| Silica | 4.200 |
| Bromine | Traces |
| Nitrates | " |
| Carbonates of iron | 1.030 |
| | <u>144.557</u> |

The following evidence, on authority, is proof of the freedom of the waters from organic pollution:-

| | Grains per Gallon. |
|------------------------------|--------------------|
| Saline ammonia | 0.0112 |
| Albuminoid ammonia | Nil. |

As regards the use of these waters for drinking when they come fresh from the springs they are clear and sparkling without any odour. They have a slight but not unpleasant saline chalybeate taste but are quite free from the nauseating sensation obtained after drinking ordinary hot water. The mere fact of the waters being drunk hot may have much to do with their curative value in the treatment of chronic gouty affections. Thus taken these mineral waters aid the action of all the glands and excite the various secretions. The pulse tension is raised and its rate accelerated after drinking these waters. The quantity of water usually taken, eight to ten ounces has a laxative effect on the bowels, and when taken in greater quantities has a decidedly purgative action, for by virtue of their saline ingredients the waters act as hydragogue cathartics.

When say one and a half pints are taken daily it may be depended on to regulate the system properly by washing/

washing out the stomach and intestines and also by flushing out the kidneys. As a rule in this Hospital the mineral waters are given twice daily in quantities of eight to ten ounces morning and afternoon. The patient is advised to sip the water moderately slowly - not so slow however as to allow the water to cool.

The water for drinking is never prescribed in cases of an acute inflammatory nature.

The virtues of these waters are in large part due to the facts borne out by experiments that they will dissolve over five times the amount of uric acid that distilled water would take up at blood heat. Then again in the Bath waters we have almost a complete absence of sodium salts, which when present in water act against the removal of gouty deposits.

Lastly we have their undoubtedly beneficial action as a stimulating, diuretic, diaphoretic and purgative water.

Now let us turn to the modes of application of the Baths in the treatment of gout. The parent bath from which all other have evolved is the Deep or General Bath. These are T-shaped baths holding from eight hundred to nine hundred gallons of hot mineral water at a uniform depth of four and a half feet. The temperature varies/

varies from 96° to 100° Fahr.

These baths are lined with slabs of porcelain and round the sides are seats and hand-rails for the use of bathers. These baths are of such a size as to permit of free movement by the bather which he ought to be doing during the whole period he is in the bath. On first immersion the patient probably has a feeling of shivering and a sensation of shock, but having got 'all over' these feelings soon pass off and are succeeded by a glowing sensation ^{of} warmth. The Deep Bath always has the effect of increasing the cardiac and respiratory rates. The bather should not remain in longer than fifteen minutes on each occasion. In the case of crippled and helpless subjects of chronic gout who are unable to walk into the bath there is an arrangement of pulleys attached to a wooden armchair which can be gently lowered into the Deep Bath, and at the end of the period prescribed be brought up out of the water.

On leaving the bath the patient is enveloped in a warm linen sheet over which is placed a warm blanket. The sheet having taken the 'rough' off is now allowed to drop down. The patient is now wrapped up in the warm blanket and taken to the dressing room where he is/

is well towelled. He now experiences a glowing sensation of warmth and feels much refreshed. There is very seldom indeed any of that sinking or fainting feeling which comes over a person who has had a warm bath of ordinary water lasting over a similar period. In a few cases, however, there is a subsequent flushing of the skin of the face and upper part of the body, and perhaps a feeling of giddiness. If so the temperature of the water should be lowered, and if after these precautions have been taken these symptoms persist then the baths must be discontinued.

Another difference in the after effects of a hot mineral water bath and an ordinary hot water bath is the absence of after-perspiration in the former. In those cases however where such after-perspiration is desired, then immediately after the bath when already enveloped in the sheet and blanket, he should be further rolled up in several warm blankets and laid on a couch where he remains for about fifteen minutes. The result is the same here as after applying the hot pack in cases ^{of} say acute nephritis - it acts as a rapid sudorific.

The effect of these baths in chronic gout when taken every second day over a period of three or four weeks is wonderful in the relief of arthritic pain and/

and stiffness, besides the general tonic and soothing effects.

Subjects of chronic gout who at the same time are debilitated are not fit to use the ordinary Deep Baths. Such patients are placed in a Reclining Bath and massaged under water by an attendant for ten minutes or so.

Following on this he is subjected to local douches over the affected joints, at a raised temperature usually from 100° to 104° Fahr. for about five minutes. This form of bath with under-current hot douche is much used and when used in cases ^{of} gout gives immediate and usually lasting relief from the pain while after each application the joints can be moved more and more freely.

There are two forms of wet massage in use at these baths, firstly the massage under water in the Reclining Bath and secondly that used in connection with the Aix douche. The former is certainly less fatiguing for weakly and debilitated patients than are the latter where the force and volume of the water is greater. For the more robust subjects of gout the best form of bath is the Aix-les-Bains Massage Douche. This has even a more stimulating effect than the ordinary Deep Bath. Here as elsewhere great care is exercised in keeping/

keeping the water up to the regulation temperature. The floor of the bath is always under four inches of water which is constantly being renewed, while the excess is led off.

While being massaged the patient is being constantly douched with water at a certain prescribed temperature, which towards the end of the application is gently lowered till the patient is subjected to the cold shower. After this the patient returns to the dressing room where he waits for some time before going outside.

These Aix-douches may be taken three times a week and ought to be taken in the early morning. The observance of the latter rule in Bath limits the employment of this douche bath to the summer months, but they may be had at any season of the year.

The Local Spray used here is said to owe its stimulating action by acting specially as a lymphatic stimulant, promoting the absorption and ultimate excretion of the waste tissue products. The dry

The Dry Douche is a local form of application specially adapted for use in treating gouty joints singly. A hose is attached to a tap which regulates the force of the spray to a nicety. The nozzle is brought right up to the part affected and the water at
a/

a temperature of 115° Fahr. or thereabouts is directed to the joint affected.

Meanwhile brisk massage varied by voluntary movement on the part of the patient is kept up.

The Under-current or Wet Douche is employed while the patient is in the Deep or Reclining Baths. The local douche is usually brought on towards the end of the period, usually during the last five minutes of the bath. The nozzle at the end of the tube is brought close up (under water) to the affected part and turned on at the required temperature ranging from 100° Fahr. to 104° Fahr. This form of application also is of great benefit in cases of gout affecting the joints. The force of the douche is naturally checked to some extent by the water medium through which it has to pass. The patient always leaves the bath at the end of the application of the undercurrent douche.

With regard to the massage douche the duration of administration and strength of current will vary in each case, and is given as prescribed for. For instance a patient who is just recovering from an acute paroxysm of gout would not receive the douche at more than 97° Fahr., and even then it would require to be given with great care and for a short time only, while/

while in a chronic case of gout the douche may be given at 104° Fahr. with strong massage which may be kept up for twenty minutes or half an hour. In cases of chronic articular gout prolonged courses of four weeks duration ought to be taken each year. Such patients also should be encouraged to exercise their joints by walking some distance each day, or otherwise the joints will become incurably ankylosed.

Another form of bath which should be employed whenever possible in cases of acute articular gout is the Berthollet or Natural Vapour Bath. By using this form of douche the local pain is lessened and the attacks shortened. The local vapour bath by an ingenious contrivance can be applied to any part of the body - single joints, an arm, a leg and so on. Metal tubes are fitted up for the various parts, these are connected with a drum standing about five feet high from which the vapour density is regulated by means of various valves. By means of these tubes any part of the body can be treated singly. Attached also to the drum there is also an inhaling tube, by means of which the natural steam may be inhaled from the immediate source. The temperature in the drum and connected tubes varies from 110° to 120° Fahr. By applying/

applying this local vapour to acute gouty joints the inflammation soon subsides and then is the time to begin massage over the joints. Having reached this stage the patient may take a course of General Natural Vapour Baths - again on the Berthollet system.

Here the patient is seated in a wooden box, and with the exception of the head which is exposed he is entirely shut in. A valve in the floor is now opened and there is an immediate inrush of natural vapour at a temperature of from 100° to 104° Fahr. The body of the patient is now enveloped in a cloud of hot vapour with the result that a profuse perspiration is induced. This is allowed to go on for about fifteen minutes, at the end of which time the patient having been released from the box is thoroughly well dried and rubbed down. He then sojourns to a cooling room in which he remains for at least twenty minutes before going outside. By this mode of treatment exceedingly good results are obtained in subacute and chronic forms of gouty eczema - due no doubt to the free perspiration which ensues, and the consequent return of the skin tissues to their normal condition.